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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,242	10/25/2005	Shigeru Yamago	2005-1665A	6569

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EXAMINER	
BERNSHTEYN, MICHAEL	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,242	YAMAGO ET AL.	
	Examiner	Art Unit	
	MICHAEL M. BERNSHTEYN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/30/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is a response to the remarks filed on April 30, 2008. Claim 1 has been amended; no claims have been cancelled or added.

2. In view of the amendment(s), remarks and Terminal Disclaimer, the double patenting rejection and the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Yamago et al. in view of Alger has been withdrawn.

3. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

4. Claims 1-3 are pending.

Claim Rejections - 35 USC § 103

5. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

6. Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamago et al. ("Tailored Synthesis of Structurally Defined polymers by Organotellurium-Mediated Living Radical Polymerization", Journal of American Chemical Society, 2002, 124, 13666-13667) in view of Alger ("Polymer Science Dictionary", 2nd Edition", Chapman & Hall, 1997), for the rationale recited in paragraph 2 of Office Action dated on September 18, 2006.

7. Claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Yamago et al. ("Tailored Synthesis of Structurally Defined polymers by Organotellurium-Mediated Living Radical Polymerization", Journal of American

Chemical Society, 2002, 124, 13666-13667) in view of Alger ("Polymer Science Dictionary", 2nd Edition", Chapman & Hall, 1997, p. 35) and Charmot et al. (U. S. Patent Application Publication 2002/0065380).

With regard to the limitations of claim 1, Yamago discloses a highly versatile method for the synthesisi of block copolymers based on organotellurium-mediated living radical polymerization (TEPR). TEPR is extremely general and can polymerize different families of monomers, such as styrenes, acrylates, and methacrylates, using the same initiators at a highly controlled manner. Furthermore, the versatility of TEPR allows the synthesis of various AB-, ABA-, and ABC block copolymers starting from a singly monofunctional initiator, regardless of the order of monomer addition (page 13666, 1st column, 3rd paragraph).

Yamago discloses that the effect of the dimethyl ditelluride strongly suggests that the polymerization proceeds via the detelluride-capping mechanism as shown in Scheme 2 (see below); the tellurium radical generated by the bond homolysis of 1 forms dimethyl ditelluride, which serves as the capping reagent of the polymer end radicals (page 13667, 1st column, 2nd paragraph).

Yamago discloses that the TEPR process would be suitable for a tailored synthesis of block copolymers using macroinitiators, because the same initiators can control the polymerization of different types of monomers under similar thermal conditions. ABA and ABC triblock copolymers could also be prepared starting from diblock macroinitiators in a highly controlled manner (page 13667, 2nd column, 1st paragraph).

Yamago does not disclose the usage of azo type polymerization initiator and the claimed polymerization temperature.

Alger discloses that azo initiator is well known type of initiator for the polymerization. Azobisbutyronitrile (AIBN) is by far the commonest example, others include azobiscyclohexylnitrile and 2,2'-azobis-2,4-dimethylvaleronitrile, etc. (page 35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate azo type polymerization initiator as taught by Alger in Yamago's polymerization process with new organotellurium-based initiators with reasonable expectation of success, because "It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose ....[T]he idea of combining them flows logically from their having been individually taught in the prior art." ***In re Kerkhoven***, 626 Fo2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) (Claims to a process of preparing a spray-dried detergent by mixing together two conventional spray-dried detergents were held to be *prima facie* obvious.). See also ***In re Crockett***, 279 F.2d 274, 126 USPQ 186 (CCPA 1960) (Claims directed to a method and material for treating cast iron using a mixture comprising calcium carbide and magnesium oxide were held unpatentable over prior art disclosures that the aforementioned components individually promote the formation of a nodular structure in cast iron.); and *Ex parte Quadranti*, 25 USPQ2d 1071 (Bd. Pat. App. & Inter. 1992) (mixture of two known herbicides held *prima facie* obvious).

Charmot discloses that polymerization conditions for producing living radical polymer include a temperature in the range most preferably between about 25^0C and about 150^0C, which is overlapping the claimed range (page 7, [0064]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the polymerization conditions such as temperature and time within the claimed range as taught by Charmot in Yamago's and Alger's polymerization process with new organotellurium-based initiators with reasonable expectation of success, because such polymerization conditions were successfully used during the polymerization of vinyl monomers having narrow molecular weight distribution (preferably between 1.1 and 1.8) (US'380, page 7, [0063]-[0064]), and thus to arrive the subject matter of instant claim 1.

Response to Arguments

8. Applicant's arguments filed on April 30, 2008 have been fully considered but they are not persuasive.

9. In response to Applicants arguments that "There is no suggestion in the Yamago et al. reference which would lead one of ordinary skill in the art to expect that the reaction disclosed in this reference could be conducted at a temperature within the range of 20 to 60°C as set forth in the presently claimed invention" and that "in Polymer Bulletin 43, 143-150 (1999), cited on page 2 of the present specification, styrene is polymerized with use of AIBN only to obtain polystyrene having PD(Mw/Mn)=2.46 in Table 2, run 1 of page 146 (page 4, the last paragraphs), please, see the paragraph 7 of

current Office Action and the reference of Charmot, which clearly discloses the claimed polymerization temperature.

10. In response to Applicants arguments that "The references certainly do not provide the art- skilled with any teaching, suggestion or motivation to incorporate the azo type initiator of Alger in Yamago et al.'s polymerization process" (page 5, the last paragraph), it is noted again that azo type initiator is commonly used for the process of living radical polymerization of vinyl monomers, and it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate azo type polymerization initiator together with the organotellurium compound with reasonable expectation of success.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael M. Bernshteyn/
Examiner, Art Unit 1796

/M. M. B./
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/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796